



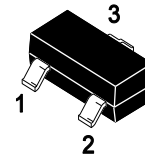
PJM2303BSA

N-Enhancement Mode Field Effect Transistor

FEATURES

- ◆ Trench FET Power MOSFET
- ◆ $R_{DS(ON)} < 105m\Omega$ ($V_{GS} = 10V$)
- ◆ $R_{DS(ON)} < 125m\Omega$ ($V_{GS} = 4.5V$)

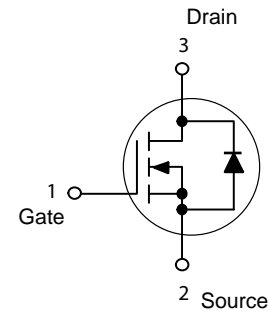
SOT-23



APPLICATIONS

- ◆ DC/DC Converter
- ◆ Battery Switch

Schematic diagram



Absolute Maximum Ratings

Ratings at 25°C ambient temperature unless otherwise specified.

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DS}	60	V
Gate-Source Voltage	V_{GS}	± 20	V
Continuous Drain Current	I_D	3	A
Pulsed Drain Current ^{NOET 1}	I_{DM}	10	A
Total Power Dissipation ^{NOET 2}	P_D	$T_A=25^\circ C$	1.4
		$T_A=70^\circ C$	1
Operating Junction Temperature	T_J	150	$^\circ C$
Storage Temperature	T_{STG}	- 55 to + 150	$^\circ C$

Thermal Characteristics

Parameter	Symbol	Typ	Max	Units
Maximum Junction-to-Ambient ^{NOET 2}	$R_{\theta JA}$	$t \leq 10s$	65	$^\circ C/W$
		Steady-State	85	$^\circ C/W$

Note: 1. Repetitive rating : Pulse width limited by junction temperature.

2. The value of $R_{\theta JA}$ is measured with the device mounted on 1in² FR-4 board with 2oz. Copper, in a still air environment with $T_A=25^\circ C$. The value in any given application depends on the user's specific board design. The current rating is based on the $t \leq 10s$ thermal resistance rating.



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ELECTRICAL CHARACTERISTICS (T_A=25°C unless otherwise noted)

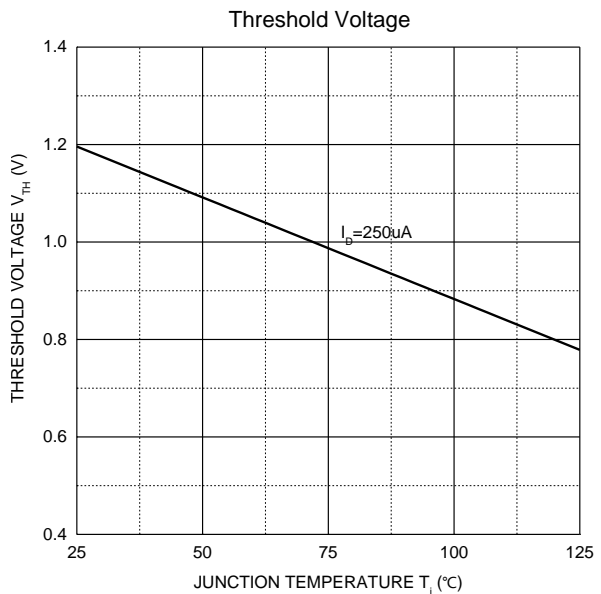
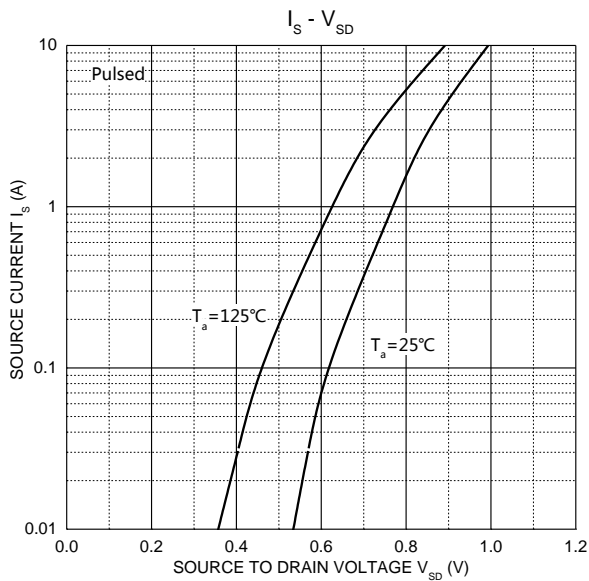
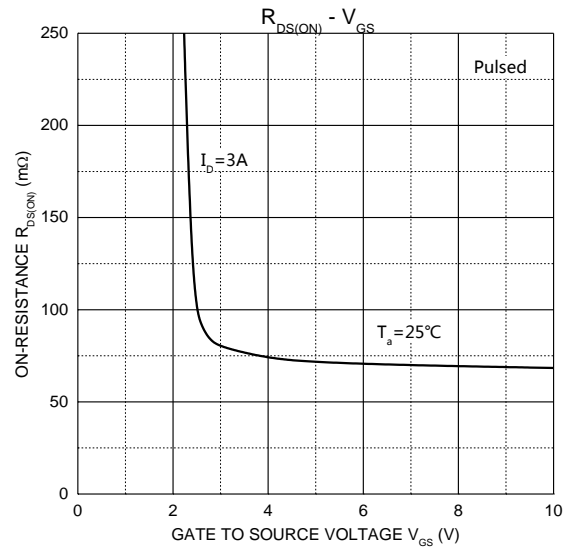
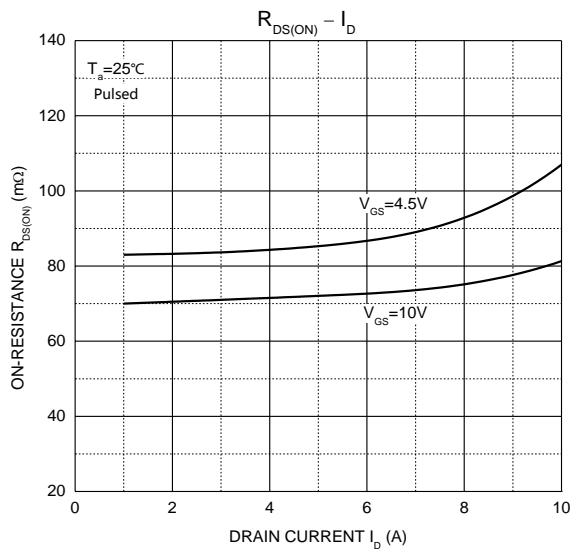
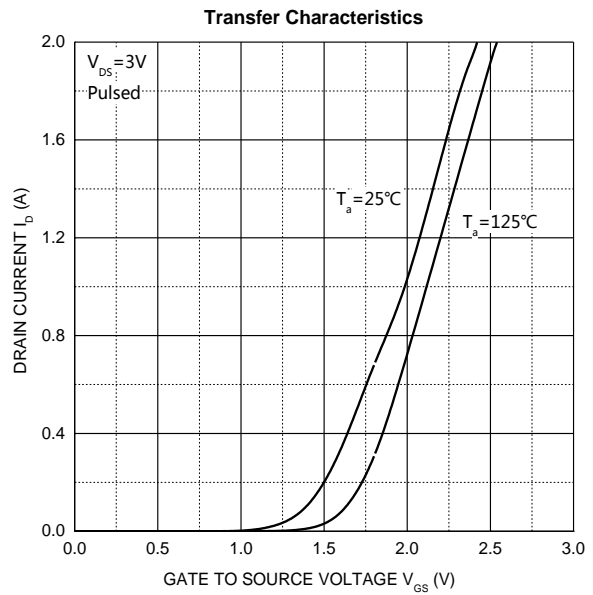
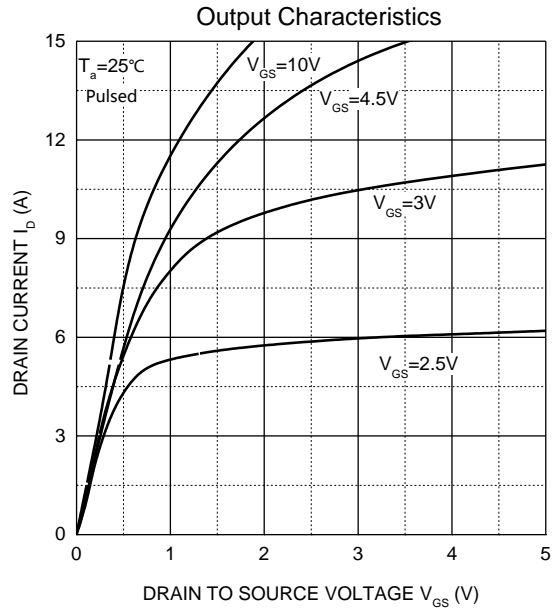
Parameter	Symbol	Test Condition	Min	Type	Max	Unit
STATIC CHARACTERISTICS						
Drain-Source Breakdown Voltage	V _{(BR)DSS}	V _{GS} = 0V, I _D = 250μA	60			V
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} = 60V, V _{GS} = 0V			1	μA
Gate-Body Leakage Current	I _{GSS}	V _{GS} = ±20V, V _{DS} = 0V			±100	nA
Gate Threshold Voltage ³	V _{GS(th)}	V _{DS} = V _{GS} , I _D = 250μA	0.5	1.2	2	V
Drain-Source On-Resistance ³	R _{DS(on)}	V _{GS} = 10V, I _D = 3A		70	105	mΩ
		V _{GS} = 4.5V, I _D = 3A		82	125	
Forward Transconductance ³	g _{FS}	V _{DS} = 15V, I _D = 2A	1.4	2.5		S
DYNAMIC CHARACTERISTICS⁴						
Input Capacitance	C _{iss}	V _{DS} = 30V, V _{GS} = 0V, f = 1MHz		250		pF
Output Capacitance	C _{oss}			26		
Reverse Transfer Capacitance	C _{rss}			20		
SWITCHING CHARACTERISTICS⁴						
Total Gate Charge	Q _g	V _{DS} = 30V, V _{GS} = 4.5V, I _D = 3A		7		nC
Gate-Source Charge	Q _{gs}			1.2		
Gate-Drain Charge	Q _{gd}			1.5		
Turn-On Delay Time	t _{d(on)}	V _{GS} = 10V, V _{DD} = 30V, I _D = 1.5A, R _{GEN} = 1Ω		6.5		ns
Turn-On Rise Time	t _r			15.2		
Turn-Off Delay Time	t _{d(off)}			15.2		
Turn-Off Fall Time	t _f			10.3		
Source-Drain Diode characteristics⁴						
Body Diode Voltage	V _{SD}	I _S = 3A, V _{GS} = 0V		0.8	1.2	V

Notes :

1. Repetitive rating : Pulse width limited by junction temperature.
2. Surface mounted on FR4 board , t_s ≤ 10s.
3. Pulse Test : Pulse Width ≤ 300μs, Duty Cycle ≤ 0.5%.
4. Guaranteed by design, not subject to production testing.



TYPICAL CHARACTERISTICS CURVES

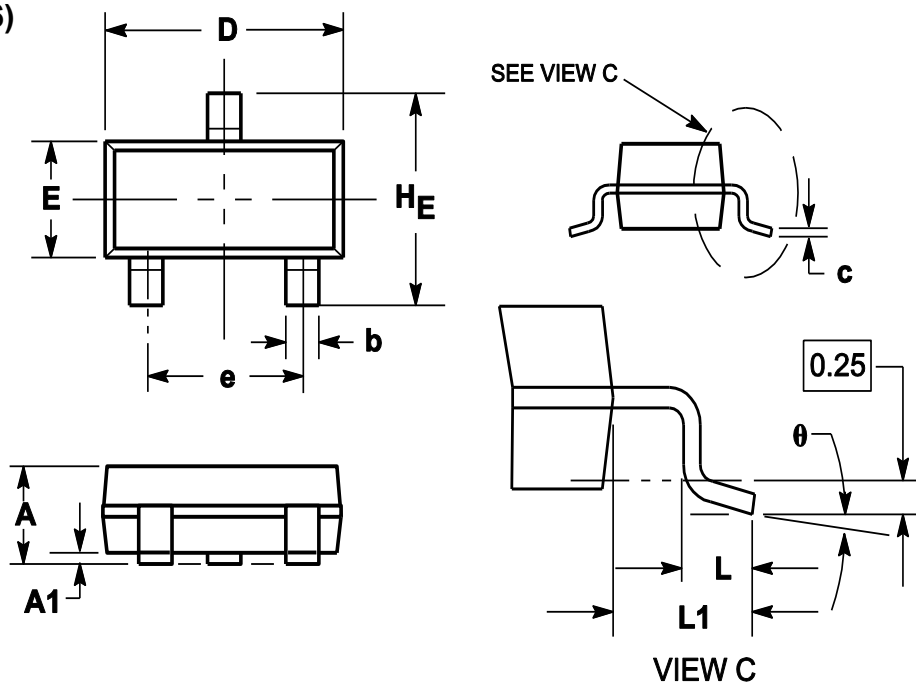




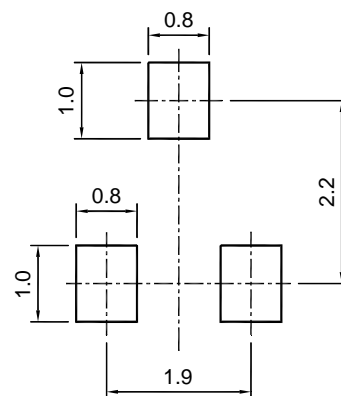
PJM2310NSA N-Enhancement Mode Field Effect Transistor

PACKAGE OUTLINE

SOT-23 (TO-236)



Symbol	Dimensions in millimeter		
	Min.	Typ.	Max.
A	0.900	1.025	1.150
A1	0.000	0.050	0.100
b	0.300	0.400	0.500
c	0.080	0.115	0.150
D	2.800	2.900	3.000
E	1.200	1.300	1.400
HE	2.250	2.400	2.550
e	1.800	1.900	2.000
L1	0.550REF		
L	0.300		0.500
θ	0°		8°



SOT-23 (TO-236)

Recommended soldering pad

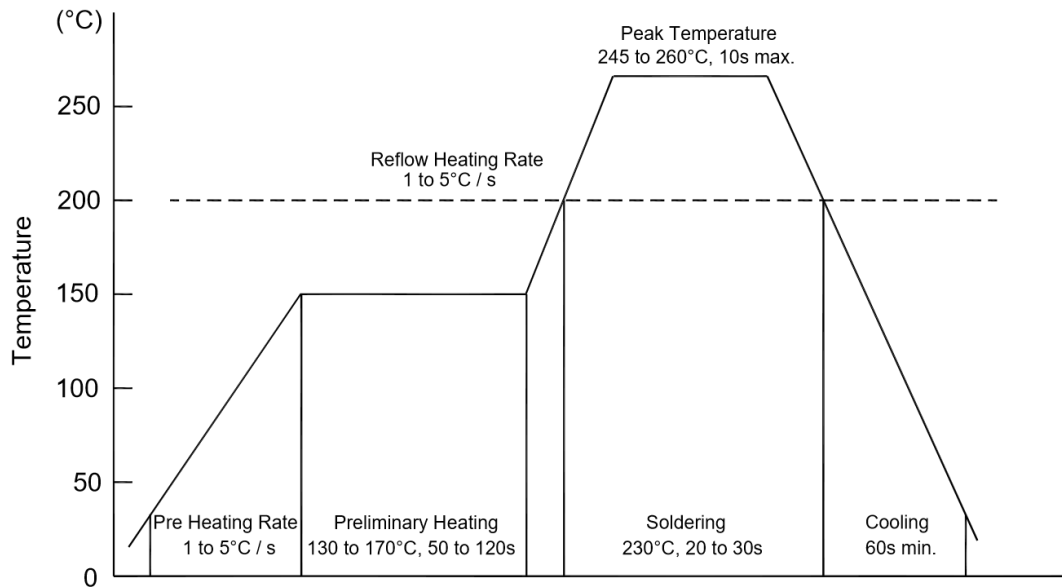
ORDERING INFORMATION

Device	Package	Shipping
PJM2310NSA	SOT-23	3000/Reel&Tape(7inch)



CONDITIONS OF SOLDERING AND STORAGE

◆ Recommended condition of reflow soldering



Recommended peak temperature is over 245 °C. If peak temperature is below 245 °C, you may adjust the following parameters:

- Time length of peak temperature (longer)
- Time length of soldering (longer)
- Thickness of solder paste (thicker)

◆ Conditions of hand soldering

- Temperature: 370 °C
- Time: 3s max.
- Times: one time

◆ Storage conditions

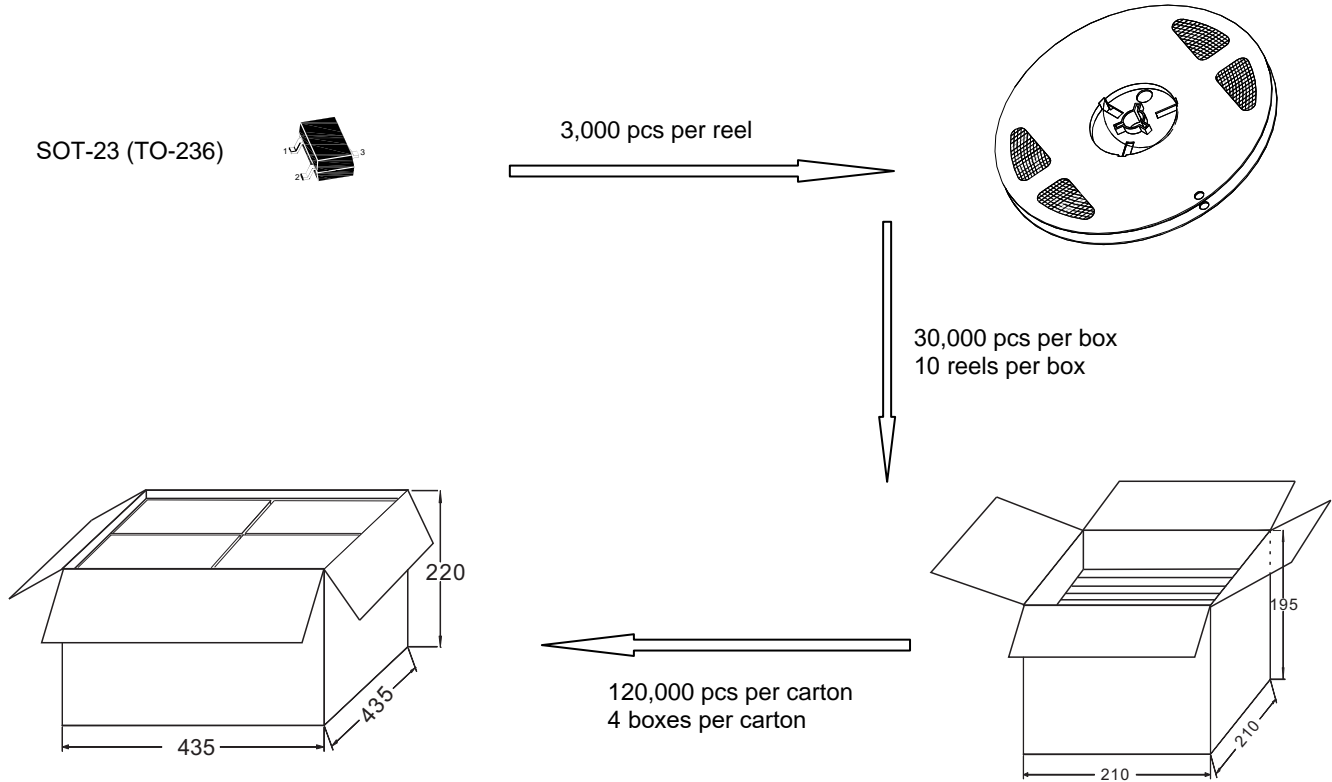
- **Temperature**
5 to 40 °C
- **Humidity**
30 to 80% RH
- **Recommended period**
One year after manufacturing



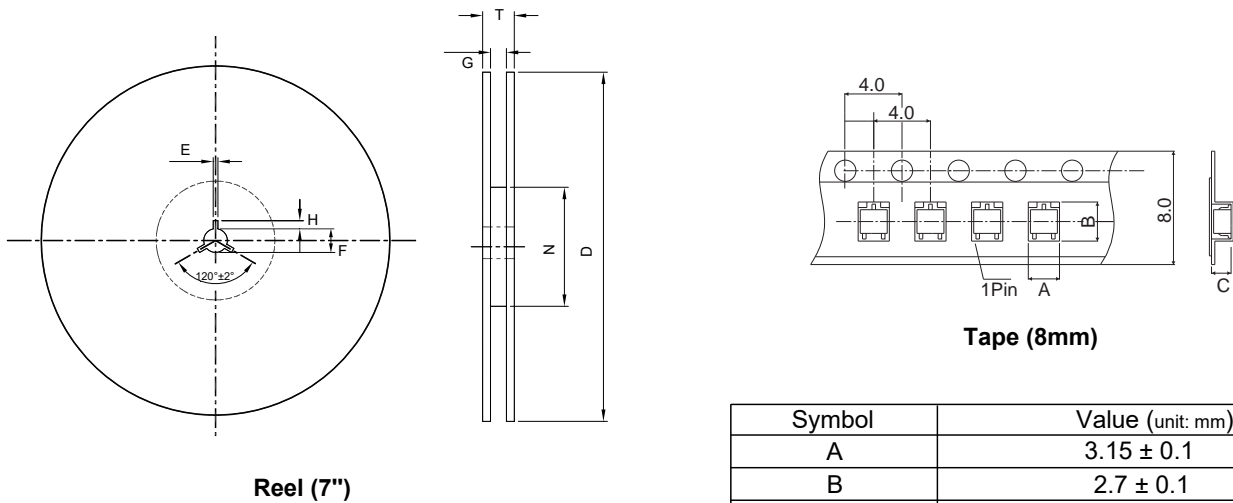
PJM230\$BSA N-Enhancement Mode Field Effect Transistor

PACKAGE SPECIFICATIONS

◆ The method of packaging



◆ Embossed tape and reel data



Symbol	Value (unit: mm)
A	3.15 ± 0.1
B	2.7 ± 0.1
C	1.25 ± 0.1
E	2 ± 0.5
F	13 ± 0.5
D	178 ± 2.0
G	8.4 ± 1.5
H	4 ± 0.5
N	60
T	< 14.9